

**Name of Institution:** Penn State University/Indian Council of Forestry Research & Education (ICFRE)

**Name of Activity:** Kerala Forestry Project

**Point of Contact:** Michael Jacobson

**Summary of Activity:** Under the umbrella of Council, there are nine Forest Research Institutes located under various agro-climatic zones conducting research on various forestry aspects in their zones. Specific aims include sustainable production and utilization of quality wood, safeguarding the ecosystem, and strengthening forestry research programs by way of technical guidance and training. This program was funded through ICFRE.

**Name of Institution:** Penn State University/M.S. Swaminathan Research Foundation (MSSRF)

**Name of Activity:** U.S.-India Symposium on the Science and Use of Plasticulture Technology

**Point of Contact:** Dr. M. Velayutham, Executive Director, MSSRF

**Summary of Activity:** Symposium held in conjunction with the India Plastic Exposition and the International Seminar on Global Business Opportunities in Plastics. Emphasis on science and technology while working through environmental sustainability and social development. Funded through the Indo-U.S. Science and Technology Forum.

**Name of Institution:** Penn State University/Maharashtra Agricultural University

**Name of Activity:** Establishment of Maharashtra Agricultural University

**Point of Contact:**

**Summary of Activity:** Assisted in the development of Maharashtra Agricultural University (1970)

**Name of Institution:** Penn State University/International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

**Name of Activity:** Research Collaboration.

**Point of Contact:** Dr. C.L.L. Gowda, Global Theme Leader; Dr. H.C. Sharma, Principal Entomologist; Dr. K.K. Sharma, Principal Biotechnologist

**Summary of Activity:** Goal of this research project is to improve Sorghum and Pigeonpea crops through the use of classical genetics as well as cutting edge biotechnology methods. Currently seeking funding

**Name of Institution:** Penn State University/ICRISAT

**Name of Activity:** Student and research exchange program

**Point of Contact:** Dr. S. Chopra

**Summary of Activity:** Memorandum of agreement established for exchange visits of researchers and students. To date, one Penn State undergraduate student has traveled to ICRISAT to learn sorghum-insect bioassay techniques. Funding provided by Dr. Chopra's lab, PSU Ag. International Programs, and PSU Schreyer Honors College. Penn State has also hosted Dr. C.L.L. Gowda, Global Theme Leader, during a visit to the University to meet with various researchers, give a seminar, and strengthen relationships.

**Name of Institution:** Penn State University/Punjab Agricultural University

**Name of Activity:** Research Agreement

**Point of Contact:** Dr. S.S. Ghosal, Director, Plant Biotechnology Center

**Summary of Activity:** Dr. Ghosal's program focuses on genetic transformation of several crop species, while Penn State has a project focusing on plant secondary metabolites that are useful in combating fungal diseases. The goal of the agreement is to transfer knowledge and beneficial factors to important crops in the Punjab region.

**Name of Institution:** Penn State University/University of Jammu

**Name of Activity:** Research Collaboration

**Point of Contact:** Dr. Manoj Dhar, Head, Department of Botany

**Summary of Activity:** Developing tools for in situ hybridization in maize, with a long term goal of developing cytogenetic tools to visualize genes on chromosome and superimpose the c-banding map on the FISH (fluorescent in situ hybridization) map. Dr. Dhar will be visiting Penn State in January 2006 to help set up the Penn State lab. Currently seeking funding.

**Name of Institution:** Penn State University/MAFSU, Bombay Veterinary College, Government of India Regional Center for Food Safety.

**Name of Activity:** 3 week workshop for 3 visiting veterinarians from the above institutions

**Point of Contact:** Dr. Bhushan Jayarao

**Summary of Activity:** Workshop addressed the following topics: Standard operating procedures for assessing chemical and biological agents in foods of animal origin; HPLC and GC techniques for identification and characterization of pesticides, antibiotics and hormones in animal origin foods; and Handling and processing biological data and preparation of standard laboratory reports.

**Name of Institution:** Penn State University/National Dairy Development Board (NDDB), Anand

**Name of Activity:** Visit by professor

**Point of Contact:** Dr. Bhushan Jayarao

**Summary of Activity:** Purpose of visit was to discuss development of diagnostic tests for Mycobacterium paratuberculosis and Mycobacterium bovis; development of tests for detection of mastitis in buffalos.

**Name of Institution:** Penn State University/Maharashtra Animal and Fishery Sciences University (MAFSU)

**Name of Activity:** Development of a joint task force

**Point of Contact:** Dr. Bhushan Jayarao (PSU), Dr. A.T. Sherikar, Vice Chancellor at MAFSU

**Summary of Activity:** Development of a joint task force for genome sequencing of Murrah Buffalo and other milch buffaloes of Indian subcontinent. Penn State has the expertise and will take the lead role in developing the project. Dr. Sherikar is currently in consultation with the Minister for Agriculture and other government officials to have this project initiated.

**Name of Institution:** Penn State University/various Indian Veterinary Colleges

**Name of Activity:** Lectures

**Point of Contact:** Dr. Bhushan Jayarao

**Summary of Activity:** Dr. Jayarao visited 6 Veterinary Colleges (Mumbai, Chennai, Bangalore, Triupati, Hyderabad, and Pondicherry) to deliver lectures on: Veterinary Medicine in the 21<sup>st</sup> Century; Biomedical Sciences; and prudent use of antimicrobials.

**Name of Institution:** Penn State University/Tamil Nadu Agricultural University (TNAU)/ICRISAT/AVRDC

**Name of Activity:** Integrated Pest Management Collaborative Research Support Program (IPMCRSP)

**Point of Contact:** Dr. Edwin Rajotte

**Summary of Activity:** About 4 years ago we partnered with TNAU to develop and implement transgenic eggplant as a technology against the eggplant fruit and shoot borer. This alliance consisted of testing new transgenic lines in India as well as sending Bangladeshi scientists to TNAU for training. In addition, TNAU scientists became part of the overall IPMCRSP planning and evaluation process. Additionally, we are about to embark on a new 4-year project that uses our past success to expand this regional approach to IPM. Scientists from TNAU, ICRISAT, AVRDC and other Indian agricultural institutions yet to be contacted will form a consultative resource. The new IPMCRSP project will test several mechanisms that will facilitate the process.

**Name of Institution:** Penn State University/Foreign Agriculture Service (FAS)

**Name of Activity:** Biotechnology Training

**Point of Contact:** Virenda Kumar Singh

**Summary of Activity:** Three month training for FAO Fellow Virenda Kumar Singh on the use of biotechnology to convert cereal crop residues for use in mushroom production. Funding provided by USDA FAS (\$10,000).

**Name of Institution:** Penn State University/University of Poona

**Name of Activity:** Memorandum of Understanding

**Point of Contact:**

**Summary of Activity:** Memorandum of Understanding for cooperative programs, linkages through academic exchange of students and teachers, collaborative research and exchange of information.

**Name of Institution:** Penn State University/Gujarat University

**Name of Activity:** Post-Earthquake Shelters

**Point of Contact:** Dr. Bill Lamont, Dr. Mike Orzolek

**Summary of Activity:** Assisted Gujarat University in building low-cost shelters for those left homeless by earthquake. The shelters could then be used as greenhouses to help economic growth for India's small scale farmers. Coordinated funding with Dr. M.S. Swaminathan.

**Name of Institution:** Penn State University/Gujarat University

**Name of Activity:** Research initiatives assistance

**Point of Contact:** Dr. Swamy Anantheswaran

**Summary of Activity:** Dr. Anantheswaran worked with this University for 3 years to assist their food engineering program with their research initiatives.

**Name of Institution:** Penn State University/Indian Institute of Technology

**Name of Activity:** Adjunct Professor of Chemical Engineering

**Point of Contact:** Dr. Swamy Anantheswaran

**Summary of Activity:** Dr. Anantheswaran is currently serving as an Adjunct Professor of Chemical Engineering at the Indian Institute of Technology. He teaches food engineering courses; is helping the department to start a dual major in food engineering; is conducting joint research in the areas of food process engineering with the Center for Technology Alternatives for Rural Areas

**In addition** to the activities listed above, Penn State researchers have contacts with the following companies in India: Mahyco (seed company which is a subsidiary of Monsanto), ITC Limited, and Unilever.